**Biodiversity Outline Sample**

Ms. Ottolini, AP Biology, 2012-2013

1. Prokaryotes
2. The Two Prokaryotic Domains: Eubacteria and Archaebacteria

* Eubacteria have peptidoglycan in their cell walls and no introns (non-coding sections) in their DNA
* Archaebacteria live in harsh environments have no peptidoglycan, and have introns
* Example Archaea include methanogens, thermophiles, and halophiles

1. Prokaryotic Cell Structure

* Prokaryotic cells contain small amounts of DNA arranged in a circular chromosome and ribosomes but very few membrane-bound organelles
* They are far smaller than eukaryotic cells and tend to be found in unicellular organisms
* 3 different cell shapes: coccus (round), bacillus (rod), or spirillus (spiral)
* Cell Wall Composition: levels of peptidoglycan in cell wall determine whether the bacterium is gram negative or positive
* Peptidoglycan = a network of sugars and animo acids forming a protective layer outside the cell membrane

1. Role of Prokaryotes in the Environment

* Can cause diseases
* Can help recycle nutrients and elements (ex: nitrogen) in the environment
* Can be used to decompose organic matter (ex: dead organisms)
* Scientists have used genetically-modified bacteria to clean up pollution and synthesize human proteins

1. Movement

* Use flagella for movement
* Their flagella are made of a single tubulin protein
* Taxis = can respond to stimuli (ex: light, food) and move away/towards it

1. Energy Strategies

* Can be autotrophs (make their own food from chemicals or the sun) or heterotrophs (consume other organisms)

1. Reproduction

* Use binary fission (copy DNA and split cell), which is simpler than mitosis (eukaryotic cell division)
* Mixing genes in bacteria can occur by transformation (taking up DNA from the environment), transduction (receiving bacterial DNA from a virus), and conjugation (passage of bacteria DNA from one bacteria to another through a sex pillus)

*\*\*\*Note: I included three or more main ideas (bullet points) for my first four subheadings, but I included fewer than three main ideas for my last two subheadings (Energy Strategies and Reproduction). I did this because only four subheadings are required, and I could summarize the key information for the last two subheadings in a short amount of text.\*\*\**